



# CoCoRaHS Collections

*“Because Every Drop Counts”*

The Ohio Newsletter

Fall 2016

## Ohio Precipitation Variability Since 1895

By: Jeffrey C. Rogers

State Co-Coordinator, Ohio CoCoRaHS, and State Climatologist Emeritus

Many Ohio CoCoRaHS precipitation observers have been with the network for several years, some since its inception in the 2008-2009 winter. The precipitation observations that we make have already contributed to our understanding of the impacts of hydrological extremes such as excessive rain and prolonged summer dryness. Ohio has a long history of volunteer precipitation observers and record keeping, some dating back to the early 1800s. A major source of long-term weather observations has been the National Weather Service (NWS) Cooperative Observer Program (COOP) which was formally created in 1890. Precipitation data gathered over many decades by the numerous COOP observers, along with data collected from airports and at NWS forecast offices, has led to the development of a statewide long-term precipitation record extending to the year 1895. With these data it is possible to obtain a picture of our long-term statewide precipitation variability, as follows.

The Ohio statewide precipitation time series (1895-2016) in the diagram on the next page is broken down into the total annual values (January through December), and that for two agriculturally significant seasons. The growing season statewide rainfall totals cover the months April through September while the recharge season rainfall covers a period from October through March (dated by the year of the January) when streamflow, soil moisture, and ground water can be recharged while little heat-driven evaporation is occurring.

Ohio total annual precipitation variability (top of the diagram) is characterized by numerous low values during individual years from 1930-1965 when recurrent droughts occurred in the 1930s, and early 1950s and 1960s. The lowest statewide annual totals include 1963 (26.79”), 1934 (27.16”), 1930 (27.20”), and 1895 (28.29”). Precipitation has been much higher in recent decades starting with 1990 (51.07”) and the record year 2011 (55.95”) when many Ohio CoCoRaHS observers individually reported over 50 inches of annual precipitation. The mid- 20<sup>th</sup> century record of 1950 (48.34”) is still in third place. The Ohio total annual precipitation trend line (dashed line) starts near 37” and ends at about 40”. In fact, the current 30-year (1987-2016) average statewide annual precipitation total is now 40.13”. (Continued on Page 2)

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A special thank you to those listed below for contributing to this newsletter!



-Jeffrey C. Rogers,

State Co-Coordinator

-Julian Turner,

CoCoRaHS Headquarters

-Ohio Regional Coordinators

-CoCoRaHS Website

Is there a topic that you would like to hear about in a future newsletter?

If so, please contact:



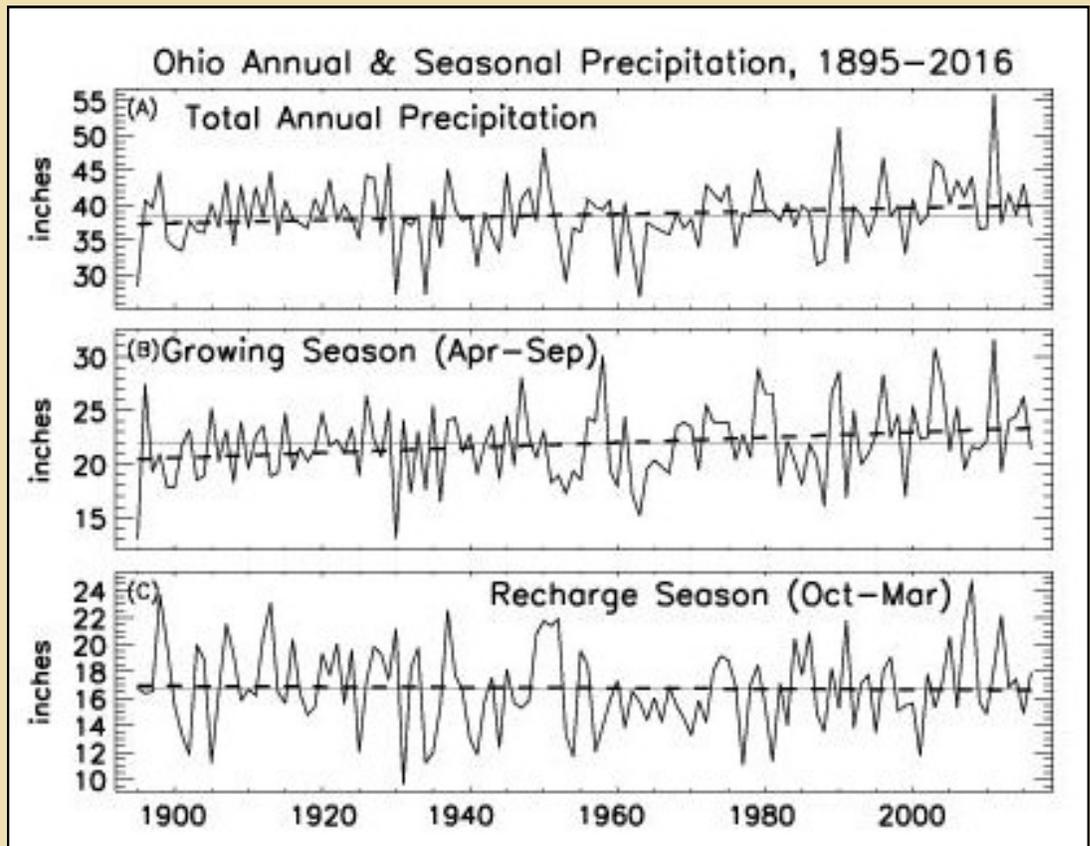
Ashley.Novak@noaa.gov

## Ohio Precipitation Variability Since 1895 (Continued)

Recharge season precipitation (bottom time series) ranges from 9.63" (1931) to 24.74" (2008). It is characterized however by a slight downward trend of about one-third of an inch over the entire record. Although not shown here, much of the decline in recharge precipitation is due to downward trends in statewide January-March data, the only months of the year exhibiting some drying with time.

Ohio growing season rainfall (middle time series) steadily increases over the 122-year data record, accounting for the overall increase in total annual precipitation. Growing season rainfall ranges from 12.96" (1895) and 13.03" (1930) to 30.78" (2003) and 31.61" (2011). Ohio now averages over 23.3" of growing season rain versus 20.5" in the early data of the 20<sup>th</sup> century. Increases in the growing season precipitation since the 1990s have had some noteworthy impacts. Although the great droughts of 1988 and 2012 took a toll on Ohio agriculture, Ohio municipal water supply shortages were rare in 2012 compared to large problems in 1988. The 1988 drought occurred at the end of years, if not decades, of relatively lower growing and recharge season precipitation.

The 2012 drought, in contrast, followed our wettest year, and a wet decade, yielding high reservoir and ground water supply levels. Overall, Ohio growing season rainfall has increased by just under 3 inches over the period since 1895, nearly a 14% increase that has been simultaneously accompanied by long-term growing-season increases in atmospheric humidity and air temperature.



## 2016 Daily Precipitation Award

OH-AT-1  
OH-AT-12  
OH-CC-1  
OH-CK-1  
OH-CM-7  
OH-CN-10

OH-CW-1  
OH-CY-16  
OH-CY-24  
OH-DL-8  
OH-DL-10  
OH-DR-1

OH-ER-18  
OH-FR-3  
OH-GG-4  
OH-GG-7  
OH-HR-2  
OH-HY-5

OH-HY-9  
OH-LK-9  
OH-LS-23  
OH-MC-7  
OH-MD-2  
OH-MM-1

OH-MY-5  
OH-MY-17  
OH-MY-34  
OH-MY-39  
OH-PB-1  
OH-PT-2

OH-PT-12  
OH-PT-17  
OH-SD-2  
OH-WD-14  
OH-WR-14

## Silver Snowflake Award \* 2000 Daily Precipitation Reports

Congratulations to our new Silver Snowflake Award members! These individuals have reported over 2000 daily precipitation reports. You should receive your award certificate in the mail soon! Thank you for your daily dedication to CoCoRaHS!

OH-AT-7	OH-FR-23
OH-WD-12	

## Bronze Observer Award 1000 Daily Precipitation Reports

OH-ER-10	OH-ER-13	OH-HK-3	OH-MY-23
OH-PT-13	OH-PY-1	OH-WS-4	

Congratulations to our new Bronze Observer Award members! These individuals have reported over 1000 daily precipitation reports. You should receive your award certificate in the mail soon! Thank you for your daily dedication to CoCoRaHS!

## 500 Club!

Congratulations to our newest 500 Club members! These observers have submitted at least 500 daily precipitation reports since becoming a CoCoRaHS observer. We look forward to adding onto this list with the next newsletter. Way to go!



OH-FR-34	OH-FY-5	OH-GR-11	OH-HD-19
OH-HM-23	OH-MR-9	OH-MY-33	

## Fall 2016 Honor Roll (continued on page 4)

**From September 1, 2016 through November 30, 2016, these Ohio stations reported everyday. Here are those stations who get a thumbs up for their dedication!**

Not listed below, but thought you reported everyday? You can check your reports. There are multiple ways to do this. You can go into your account and click on list/edit my daily precipitation reports. This will show your reports everyday. You can also go into 'view data' at the top of the page and click on 'station precipitation summary report.' Input your station and the period of interest. The missing days will be shown with dash marks. If there are additional questions e-mail [Ashley.Novak@noaa.gov](mailto:Ashley.Novak@noaa.gov).

OH-AT-1  
OH-AT-5  
OH-AT-12  
OH-CB-2  
OH-CC-1  
OH-CH-7  
OH-CK-1  
OH-CM-7  
OH-CM-14  
OH-CN-10

OH-CN-16  
OH-CW-1  
OH-CW-3  
OH-CY-16  
OH-CY-24  
OH-DL-8  
OH-DL-10  
OH-DL-12  
OH-DR-1  
OH-DR-7

OH-DR-8  
OH-DR-18  
OH-ER-8  
OH-ER-11  
OH-ER-18  
OH-FR-2  
OH-FR-3  
OH-FR-8  
OH-FR-22  
OH-FR-23

OH-FR-46  
OH-FR-48  
OH-GG-4  
OH-GG-7  
OH-HC-2  
OH-HD-14  
OH-HD-19  
OH-HG-2  
OH-HM-13  
OH-HM-23

OH-HM-24  
OH-HR-2  
OH-HY-5  
OH-HY-9  
OH-KN-4  
OH-LC-1  
OH-LK-9  
OH-LS-23  
OH-MC-7  
OH-MD-2

OH-MH-10  
OH-MM-1  
OH-MR-9  
OH-MY-5  
OH-MY-17  
OH-MY-25  
OH-MY-34  
OH-MY-39  
OH-PB-1  
OH-PT-2

## Newsletter

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**The Ohio CoCoRaHS Newsletter**

**E-mail:**  
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**Because Every Drop Counts**

[www.cocorahs.org](http://www.cocorahs.org)



## Helpful Links for Ohio CoCoRaHS Observers

**Obtain replacement or extra equipment from our official suppliers:**

<http://www.weatheryourway.com/cocorahs/store.html>

<http://www.ambientweather.com/strgloteprra.html>

**For information on Climate:**

<http://www.geography.ohio-state.edu/faculty/rogers/statclim.html>

<http://www.cpc.noaa.gov/>

**For Current Forecasts and Severe Weather Warnings:**

<http://www.weather.gov>

**For river information:**

<http://water.weather.gov/ahps/>

**For drought information:**

<http://droughtreporter.unl.edu/>

<http://droughtmonitor.unl.edu/>



## Fall Honor Roll Continued

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OH-PT-9  
OH-PT-12  
OH-PT-17  
OH-SD-2  
OH-SH-10  
OH-SH-13  
OH-SH-14  
OH-SH-15  
OH-SM-22  
OH-SN-3  
OH-TR-4  
OH-TS-1  
OH-TS-8  
OH-WD-12  
OH-WD-14  
OH-WD-19  
OH-WN-1  
OH-WR-10  
OH-WR-14  
OH-WR-15

